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ABSTRACT

Rhythmic movement in practice (RMP) is an alternative approach for teaching communication skills to severely-profoundly multiply handicapped children. It integrates a motoric program (rhythmic motions) and experience with objects (cues for signals, materials, and equipment used) and utilizes the principles of coactive movement (teacher-child moving in unison). The coactive rhythmic movement helps the child exhibit some form of communicative intent, involving signals and behaviors that allow the child to purposefully interact with and control his/her environment. Five case examples of the approach are described which illustrate development of rapport, environmental awareness, improved social interaction, increased environmental control through gross motor movement, and student imitation skills. (CL)

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# R.M.P. RHYTHMIC MOVEMENT IN PRACTICE FOR LANGUAGE ACQUISITION WITH SEVERELY-PROFOUNDLY MULTIHANDICAPPED STUDENTS

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## ABSTRACT

R.M.P. Rhythmic Movement in practice, is an alternative approach for teaching communication skills to severely-profoundly multihandicapped children. It integrates a motoric program (rhythmic motions); experience with objects (cues for signals, materials and equipment used); and utilizes the principles of Coactive Movement (teacher-child moving in unison).

The Rhythmic Movement coactively performed becomes a facilitator for the child to exhibit some form of communicative intent. The communication intent involves signals and behaviors used by the child to purposefully interact with and to control his/her environment.

Through Rhythmic Movement together, the teacher and child develop and establish a rapport and shared routine/event. This routine assists the child in acquiring and/or displaying signals and behaviors required to sustain a social interaction.

## COMMUNICATION ACTS

Cole (1982) a language practitioner, asserts that children learn language because it facilitates their communication with persons in their environment.

According to Halliday (1973), language provides a mechanism by which children establish interpersonal relationships, regulate the behavior of others, and satisfy their material needs or

desires. Language also assists children to explore and organize their environment, and exchange messages and information with others.

Many researchers, (Brunner 1975; Cavallaro and Bambara 1982; Cole 1982; Cole and Cole 1981; McLean and Synder-McLean 1978; Wolfgang, MacKender, and Wolfgang 1981) have linked language learning to a social context (mother-child interaction, child's playing) wherein part of the child's system of communicative acts emerge.

If communication can then be defined as being able to relate to the self and the world separate from self; most severely-profoundly multihandicapped, developmentally delayed, and severe language deficit children would be viewed as non-communicative individuals. These children frequently stay to long on the level of self-satisfaction (Robinson and Allen 1975).

Children with deficent communication abilities may fail to acquire skills that are prerequisites to language learning. Cole (1982) posits that these children continue to limit attention to their own body movements and internal states long past the age at which this normally occurs. Severely-profoundly multihandicapped children may not focus on people, objects, or events going on around them. For example, novel sounds, movements, music, and utterances may go unnoticed, while they may continue to perform self-stimulating acts.

Communication according to Musselwhite and St. Louis (1982) will occur when people interact in some way (verbally or nonverbally) so that a message passes from one person to another and a response is given in return.

Therefore, a major purpose in developing a communication program for severely-profoundly multihandicapped children is to free them from the isolation caused by their handicapping conditions. This gives them a means of interacting with their environment and assists them in reaching higher levels of independence (Sopers, 1968/71).

Robinson and Allen (1975) emphasized the concept of using movement as a source for developing communication skills.

## MOVEMENT

Motor activity is one of the earliest ways of knowing the world and objects within it. As a result of an individual's observation of his/her own body, how it works, the relationship of its parts and to external objects, one develops body image.

Cole and Cole (1981) stated prior to any language training for a child, the development of motor imitation skills must be established. For a nonverbal child acquiring a first language, the process of imitation provides a vehicle for enabling him/her to initiate a response for the first time.

The sharing of a motoric experience, developing trust (rapport), experiencing a pleasant kinesthetic sensation invites the child to express a pleasurable response. A smile, eyes open, eye contact, postural control, relaxed muscle tone,

vocalization, imitation, are indicators of communication an infant acquires through experiences with the mother.

Principles of Coactive Movement

Robinson and Allen (1975), define Coactive Movement as a method of teaching and learning involving the teacher and child moving together in unison to perform the activity, skill, or movement.

If the child has no noted movement, then the teacher provides the kinesthetic motions with the child in a nurturing embrace (if size, weight and body posture permits).

Students may exhibit a motoric activity or movement termed "resonance phenomena" by Robinson and Allen (1975, pp. 27). They suggest the instructor start with this familiar and secure activity to begin and end the coactive movement and imitation, (as the teacher is imitating the movement of the child).

This movement in itself may be rewarding for the child and performing the activity with the instructor creates a pleasurable relationship. Once established, the teacher can modify the activity and incorporate additional movement.

Coactive Movement takes a prelingual, pre-verbal, non-imitative child to a level of imitation. If not it will begin to create the existence of an outside stimuli to that child's isolated world, (an anticipatory behavior towards an event with a significant other).

It is important to note that Coactive Movement is parallel movement. The instructor and child start, move, and stop together, beginning in direct physical contact until distance can be added.

Rhythmic Movement in Practice

The students in our program are severely-profoundly multi-handicapped having various visual and auditory deficits (including blindness and deafness), physical impairments (hypertonicity, scoliosis, cerebral palsy, and spastic quadriplegia), health concerns (severe seizure disorder, encephalopathy, and cranial cerebral trauma), and varying functional levels of mental retardation (neonatal to 18 months), according to Bayley Scale of Infant Development and the Cattell Infant Intelligence Scale.

Five students were selected to initiate the coactive program. This was the beginning in a series of communication strategies to promote the development and usage of a language system. The students reside in a nursing home setting and attend a day school program. Each rhythmic program was designed on an individual basis to meet the specific needs for that particular student.

On the very basic level of resonance functioning (the feelings that joins two people together), coactive was used to establish the following prerequisites:

A) Nurturance - the basic warmth that entices the child out of himself and into the world.

B) Socialization - rapport between the child and the instructor.

C) Trust - establishment of interdependence and genuine respect between child and instructor.

This was done to develop some form of interaction between the student and the instructor and to show that this relationship could be a source of pleasure. The child and adult in a position of security, and as a result much could be developed, such as movement, social awareness, and communication. The easiest way to encourage the severely-profoundly multihandicapped child to respond and express himself to the instructor is through movement (Southwell 1968/71).

Special Components of Coactive Movement

Establishing a routine on a daily basis, same time, same designated area, and preferably the same instructor became instrumental in the child developing anticipatory behavior.

A signal for the beginning and ending of the activity brought consistency to the child's world. Depending on the impairment of our students it was visual, auditory or tactile. These signals assisted in introducing space and time, as well as predictable and dependable order to the child's world (Robinson and Allen 1975, Rogow, 1984).

Finally, a Rhythmic Movement was devised for our passive or nonmotoric students, or the student's own motion was selected to initiate the coactive sequence. After consultation with our occupational therapists regarding positioning concerns, we developed the following Rhythmic Movement programs. Each program description contains the specific goal, student diagnosis, background information, objectives, procedure and results for

that particular student.

## RHYTHMIC MOTION TO DEVELOP RAPPORT

**First Student:** 15 year old female
Bayley Scale - neonatal to 4.5 month level

**Diagnosis:** Cerebral Palsy, seizure disorder, scoliosis, vision questionable, hearing normal.

**Background:** Student was not responsive to peers, and her response to adults was limited. Student was incontinent and did not respond to being wet. However, she would whimper to be fed when she smelled food during lunch time. Her usual position throughout the school day was lying passively without motion in a sidelying position on the mat, unresponsive to her immediate environment.

**Objectives:** 1. Student will develop a rapport with the instructor.

2. Student will signal a change in her activity through facial expression.

**Equipment:** Rocking chair, texture (rough and soft)

**Procedure:** The time for coactive movement was established in the afternoon after student's primary needs (lunch and afternoon rest period) were met. She was typically more comfortable at this time. The beginning signal for the activity was a

rough textured one. The ending was signaled with a soft texture. The best position to facilitate nurturance and rapport building was the rocking chair due to her light weight, small size, and marked scoliosis. A moderate rocking motion was maintained accompained by instructor singing. Beginning responses observed in the student were relayed muscle tone and laughter. Although student often exhibited no response at all.

After approximately one year, the student's consistent responses of smiling, eye movement and vocalization were targeted as the social, signals to be used in furthering her communication skills.

Results: Over a twenty month (20) period gains on the Callier Azusa, (used as the pre and post test instrument) averaged 2.5 months. The highest being a five (5) month gain in auditory responsiveness and an average gain of two (2) months in visual response. (See Appendix A-Figure 1). It is the understanding that although these skills may have been present, they were not measurable due to this student's lack of response to her environment. Coactive was instrumental in enabling this student to purposefully interact

with her environment through facial expressions and eye contact.

After twelve (12) months of coactive movement activity other precommunication skills were incorporated into the student's program. These included varied visual and auditory training activities. (Such as localization of bright objects and sounds.

## RHYTHMIC MOTION TO DEVELOP AN ENVIRONMENTAL AWARENESS

Second Student: 24 year old male
Bayley Scale 8-12 months

Diagnosis: Spastic Quadriplegia, blind with a bilateral sensorineural hearing loss for high frequencies.

Background: Student typically lethargic, excessively sleepy and nonresponsive to auditory, visual or tactile stimuli.

Coactive Objectives:

1. To encourage student to stay awake, attend to and participate in a shared event.
2. To develop intentional communication and social signals.
3. Develop awareness of body position and, postural control (strengthen muscle tone in arms for supporting body weight to assist in positioning).

4. Provide another senscry stimulation for development of environmental awareness (kinesthetic motion).

**Program Concerns:** Student was to old and large (5'4", 138 lbs.) for a nurturing embrace in a rocker chair so the mat area became the designated place.

**Equipment:** Mat, texture cue (beginning signal, 3x3 shag carpet square), wedge (ending signal), F.M. Phonic Ear Auditory Trainer (used to amplify instructor's voice).

**Procedure:** Student was supined on mat with his knees bent, feet flat, toes pointing south, head pointing north. The instructor in an upright sitting posture was positioned facing student, with his knees bent and feet flat on mat (toes pointing north). Instructor's and student's toes touched and hands were held. A row boat exercise where the student was physically pulled up to a semi sit-up position (chest to knees) while instructor lowered to a supined position on the mat. This was done to upbeat songs by the instructor and were sychronized with the rhythmical movements of up and forward, back and down. The activity commensed approximately one half hour after the student's arrival in class for fifteen (15) minutes. It was performed on a daily basis

with the same instructor. The activity is ended by the student touching a wedge prior to being supined.

On the twentieth trial the student stayed awake the entire school day successfully without additional prompts. He started reaching out in his environment for instructor after initial cuing of texture on his thirty-fifth trial. This student also began coming into school awake consistently after the thirty-fifth trial. (See Appendix A - Figure 2). On his forty-eighth trial he displayed the ability to vocalize and smile during the coactive movement. Finally on his one hundred and fifteenth trial (approximately six (6) months later) he attempted to initiate the movement independently (the pull up and forward) once instructor held his hands.

Results: This student will now initiate the movement and vocalize in rhythmic pattern of sounds. He laughs, smiles and shows expressions, from extreme pleasure to being upset. He consistently reaches out into his environment to any auditory sounds (low frequencies) or felt movement while on the mat (e.g. someone walking on or objects dropped).

This student assists in supporting his weight by shifting himself on his hands to the wedge for a supine position once the wedge is touched. Coactive Movement generated a desire for this student to stay awake, so he could be enticed and motivated to interact with his environment and the people within it.

RHYTHMIC MOTION TO IMPROVE SOCIAL INTERACTION

(Student Initiated Movement)

Third Student: 11 year old male
Bayley Scale - 7.5 months

Diagnosis: Spastic quadriplegia, seizure disorder, vision is compound myopic astigmatism with nystagmus and bilatral sensorineural hearing loss.

Background: Student displays a self-stimulatory behavior on mat of hyperextending while rocking on knees with hand back, hands flapping. He scratches, pinches or pulls upon physical contact with another. Student maintains eye contact to persons or objects for two seconds maximum.

Coactive Objectives:
1. To answer need for movement and provide alternative (avenue) for motion.
2. To encourage student to relax muscle tone

for sitting.

3. To increase visual attention skills.
4. To improve social interaction with hands.
5. To develop communication and social signals.

Equipment: A round bolster for student and instructor to straddle and be in close physical contact. A mirror placed in front of bolster to encourage visual contact and attending for student and allow instructor to observe student's facial expressions. A texture cue for beginning and ending signals.

Procedure: Student was typically on mat. The instructor entered student's environment, by first touching his shoulder, then holding and rubbing palms of his hands (to stimulate tactile sensations and reduce tendency of student to scratch or pinch). Student was carried over to area, placed on bolster and the texture was placed on left hand (dominate hand used for tasks). The mirror was placed as mentioned in front of bolster for student and instructor to observe themselves during the activity.

As suggested by Robinson and Allen (1975) the student's own motoric activity was used to initiate the coactive movement, which was performed daily after student was in school

one hour. Instructor while holding student would rock forward and back for ten to fifteen minutes while observing student's facial expressions in mirror. After tire was up, activity was ended; cue and student were removed. During the first two (2) months of this activity, the student's consistent responses were laughing, smiling and vocalizing during the movement. The third month, a delay was used by the instructor (stop in movement) to give student an opportunity to signal the instructor his desire to continue the movement. At this point the student was required to smile, laugh, or vocalize. If he gave no response, the instructor modeled a prompt using student's hand to feel instructor's face as well as view mirror.

By the fourth month he began to consistently signal instructor by laughing or vocalizing once the instructor stopped the movement. During the movement student engaged in visual contact and attended to the activity for a maximum of six (6) minutes without briefly looking away. The sixth month, the student initiated a forward movement instead of laughing, smiling or

vocalizing to instructor. This became the needed signal to resume the movement for the activity from five to ten minutes.
Approximately the fifth month of coactive movement (eightieth trial) a second movement was added to the activity, a side to side motion. The student was still required to initiate his familar movement to resume the activity. The new sequence was forward to back, side to side, forward to back. If the student did not respond correctly the activity was ended.

Results: Once the student started initiating the forward motion, the scratching behavior stopped during coactive and has since carried over into the general school day (See Appendix B - Figure 1 and 2). Student upon approach (within his visual field) will give eye contact. During portions of his mat activity, he will relax and lay or side sit on mat independently.
He has been incorporated into small group activities for increased social intractions. (Student rarely engages in scratching or pinching behavior).

## RHYTHMIC MOTION TO INCREASE ENVIRONMENTAL CONTROL THROUGH GROSS MOTOR MOVEMENT

**Fourth Student:** 14 year old male
Bayley Scale - 18 month level

**Diagnosis:** Cerebral palsy, spastic quadriplegia
vision and hearing normal.

**Background:** Student was very sociable, alert, and eager to please. He communicated through eye pointing to pictures. The picture vocabulary was approximately twenty five (25) words. His typical behavior included an increase in muscle tone (hypertonicity) which facilitated an asymmetrical tonic neck reflex (ATNR) to the right. This interfered in all aspects of student's programing, positioning, adaptive wheelchair equipment design, communication, and feeding. His increase in muscle tone triggered the ATNR posture, and often it was beyond his control to relax his muscle tone. However, voluntary control and purposeful movement of his arms had previously been observed while student was on the mat and in a relaxed position. (This pattern had both motoric and behavioral components to it). Coactive Movement was designed to help the student gain some motor control over his body.

**Objective:**

1. The student will maintain sitting position five minutes.
2. The student will move hand/arm in conjunction with motor activity.

**Equipment:** Rocking chair, towel, hand bells, language book.

**Procedure:** The rocking chair was used to keep student flexed at the hips, to assist him in maintaining relaxed muscle tone, and to break up the ATNR pattern, (students small size and light weight aided this position). Initially, the hand bells were used to signal the beginning of the activity. After approximately eighteen (18) trials the routine was established, and the student was also required to eye point to the picture of the rocking chair, in his language book. A brisk rocking rhythm was maintained, accompained by the instructor singing lively songs. For the first eighteen (18) trials physical assistance was given to complete the required motoric signal of the student touching the instructor's hand. The student began to exhibit this required response with minimum to no physical assistance. The activity was ended when the student could no longer maintain a sitting position or fifteen (15) minutes, whichever came first.

**Results:** After two (2) months other classroom activities were incorporated into his classroom program. These helped to reinforce student's arm motion enriched during coactive movement. The activities he found most rewarding were switch manipulation in a sidelying position. A panel switch, and a tilt switch were used to assist him in manipulating the blender, tape recorder, filmstrip projector, radio, and robot. He also participated in the group band socialization activity which required him to move his arm/hand to play the organ with other students.

## RHYTHMIC MOTION TO DEVELOP AND INCREASE STUDENT IMITATION SKILLS

**Fifth Student:** 11 year old female
Cattell Infant Intelligence Scale - 15.6 months

**Diagnosis:** Spastic Quadriplegia, normal vision, bilateral sensorineural hearing loss.

**Background:** Student had a scooting movement as a means of exploring environment. She occasionally would demonstrate a four point kneeling position. This student's visual attention to a task was 2-5 seconds. Student did not initiate any interaction nor did she want to participate cooperatively in any way.

Coactive Objectives:

1. To increase visual attention span to a task.
2. To increase four point kneeling and assist in the next developmental sequence of crawling.
3. To develop imitation skills.
4. To incorporate picture point identification of objects.
5. To improve social interaction, cooperativeness and active participation skills.

Equipment: A yellow mat (stuffed with sand), mirror at end of mat to encourage visual attention, picture of mat card (beginning signal), F.M. Phonic Ear Auditory Trainer with teacher mic (to amplify teacher's voice). The mic was to facilitate reduction of irrelevant background sounds. Picture of wheelchair (ending signal).

Procedure: Once presented mat picture, student and instructor (initially) touched the picture. (Student after three (3) months touched picture independently). Student was assisted out of wheelchair and down on mat. Instructor assumed the four point kneel position next to this student, who typically laid on the mat unresponsible, and had to be physically prompted to imitate position. Instructor proceeded to crawl next to the student (to maintain close physical contact, sometimes student was

underneath instructor to crawl), along the length of the mat (approximately five (5) feet. The student and instructor gazed into the mirror placed at the end of the mat. This time was used to improve visual contact, point to images and initiate name signs to identify instructor and student. Student was then prompted to pivot and reassume the four point kneel posture and crawl along with instructor to the starting location. The student and instructor continued this procedure for twenty (20) minutes (after five (5) months). The activity ended at the starting area with student touching wheelchair picture and being assisted into chair.

Results: The sand in the mat shifted as student and instructor crawled, therefore balance and coordination were simulatneously being worked on. She in the beginning weeks had to be physically prompted to assume and maintain the four point kneeling posture and crawl.
Since the activity ended at the starting location only, her cooperativeness to participate reflected the duration of the activity. The program started at five (5) minutes and increased to twenty (20) by the fifth month. Early in the program, she smiled and laughed while viewing

herself in the mirror (third week). This mirror was instrumental in improving her attending skills from five seconds to five minutes or more. Student did begin to initiate the movement consistently during the fifth month with a gestural prompt to pivot only. She also started to imitate her name sign while observing instructor sign it in the mirror.

Coactive program assisted in establishing a rapport with student and instructor to induce cooperativeness in participating. It increased her visual attention span with the utilization of a mirror. The student was also able to gain another avenue for exploration of her environment through crawling. She was ready to be introduced into various activities to improve her imitation skills leading to a picture pointing and sign language as modes for her communication system.

## CONCLUSION

Rhythmic Movement as the sensorimotor stimulus became symbolic of pleasurable experiences. Students were able to exhibit indications of emerging communicative intent, environmental awareness, gross motor control, initiate and imitatie movements.

The first and second student's inducement in the reciprocity of the action was the first step in the development of communication. One began to smile, give eye contact and vocalize. The other student stayed awake and actively participated in the interaction.

The third student, once he imitated the instructor's imitation of his initiated movement, nonfamiliar movements were added as suggested by Bricker and Dennison, 1978. He actively engaged in a shared event and con -ibuted to the common goal of the movement (Brunner, 1975; McLean, Snyder-McLean 1978). Parts of his coactive program such as turn taking, adjusting behavior to meet the needs of another, and use of behaviors to initiate, maintain, and terminate interactions, are early routines which dialogic exchanges later can be incorporated (Cole, 1982).

The fourth student was able to use a motion within his repertoire to gain successful control over his body and inact changes into his environment. Cole (1982) states:

> "As the child realizes that their behavior brings about responses, they begin to initiate intentional actions in an effort to cause something to happen. They learn that the nature of their acts determine the responses and they begin to act differentially to achieve more certain outcomes."

As a result of Rhythmic Movement this student was able to be acclimated to switch usage as mentioned earlier.

Coactive Movement for the fifth student assisted in furthering the exploration of her environment through crawling. The emergence of those rudimentary imitation skills enabled her to independently participate in a joint activity. Imitation skills will later be incorporated into a sign language program. Musselwhite and St. Louis (1982) suggest that the individual be able to imitate motor movement, if nonvocal communication system will be developed for them.

Rhythmic Coactive Movement established interactional communicative skills for each of the students to socialize within a joint interaction. For some of the students, the ability to initiate and/or engage another into an interaction was developed.

This program was the first step to enticing these students from their isolated states and assists them into organizing and enlarging their world.

Intervention Techniques

A single one on one language program would not be able to handle such a diversity of problems and individual difference apparent in a severely-profoundly multihandicapped classroom. A combination of teaching techniques and environmental situations were developed within the natural setting to facilitate meaningful communication skills acquired from the Coactive Movement programs. Meaningful referring to the capability of the student to use the communication behavior within an interactive social context

(Stenberg, Pegnature, and Hill, 1983).

We designed environmental settings to promote single and group (small and large) activities integrating and adapting the principles from the following educational techinques: Delayed Procedure (Halle 1982; Halle, Baer, and Spadlin 1981); Mand-Modeling (Rogers-Warren and Warren 1980); and Incidential Teaching (Hart and Risley 1975) within our classrooms.

These activities such as switch usage, instrumental play within a group band situation, ball-rolling, and "simon-says" games of imitation were used for enhancement of the student's present communicative responses and those emerging language behaviors.

Some may still argue that this acquisition of language skills would not necessarily assist some of the individuals in terms of more independent functioning. But consideration should be given to a change in the level of behaviors/responses in relation to this particular population.

Functionality for these students may merely be the impacting of their school environment in a meaningful way. Any interaction that is fostered, results in a change in the school environment. This could either satisfy social needs of the student or lead to the betterment of that individual in terms of more control of his/her environment.

Functionality, then becomes something that resides within tne individual rather than just being a construct determined by outside societal constraints (Sternberg, Pegnatore and Hill 1983).

APPENDIX A

Sample Data

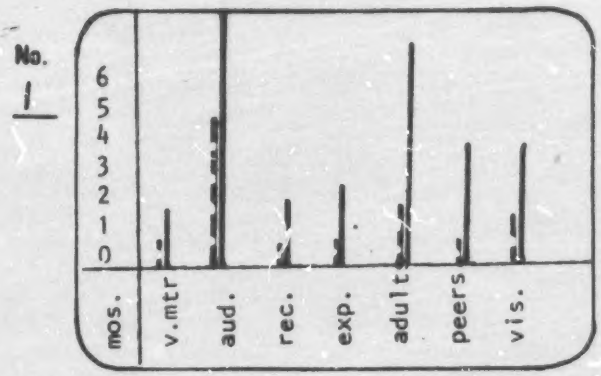


Figure 1
Data reflects progress noted on the Callier Azusa Scale, dash line - pretest, straight line - post test.
Areas are; visual motor, auditory, receptive and expressive language, adult and peer socialization, and visual.

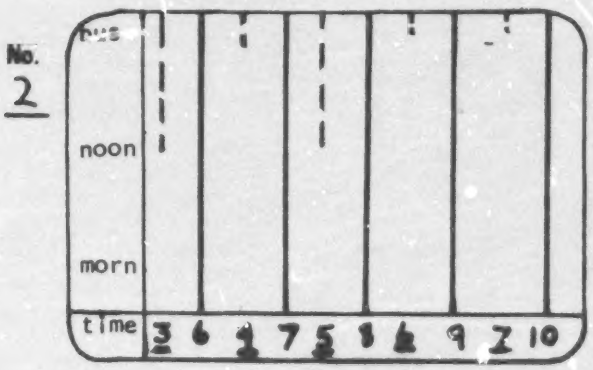


Figure 2
Data indicates portion of school day student was awake, dash line - first month, straight line - sixth month.
Underlined numbers correspond with first month - first week, remaining numbers with sixth month - first week.

APPENDIX B

Sample Data

| RESPONSES | | | | | |
|---|---|---|---|---|---|
| Smile | X | X | X | X | X |
| Laugh | X | X | X | X | X |
| Vocalize | 0 | 0 | X | 0 | 0 |
| Visual | 0 | 0 | 0 | 0 | + |
| Pinch/ Scratch | X | X | X | X | X |
| Date (May) | 7 | 8 | 9 | 10 | 11 |

Figure 1 - Third Week

Data reflects the third and twenty-fifth week of coactive programming. *Note behavior of scratching was replaced by forward movement.

Code System:

X - Student did respond in this manner.

0 - Student did not respond.

+ - Student attemped but stopped behavior.

| RESPONSES | | | | | |
|---|---|---|---|---|---|
| Smile | X | X | X | X | X |
| Laugh | X | X | X | X | X |
| Vocalize | X | X | X | X | X |
| Visual | X | X | X | X | X |
| Forward Movement | + | X | X | X | X |
| Date (Oct.) | 15 | 16 | 17 | 18 | 19 |

Figure 2 - Twenty-fifth Week

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